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Conformal mappings of stretched polyominoes onto half-plane

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Abstract

© 2017, Pleiades Publishing, Ltd.We give an algorithm for finding conformal mappings onto the upper half-plane and conformal modules of some types of polygons. The polygons are obtained by stretching, along the real axis, of polyominoes, i.e., polygonswhich are connected unions of unit squares with vertices from the integer lattice. We consider the polyominoes of two types, so-called the P-pentomino and the L-tetromino. The proofs are based on the Riemann–Schwarz reflection principle and uniformization of compact simply-connected Riemann surfaces by rational functions.

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Keywords

Conformal mapping, rational function, Riemann surface, Riemann–Schwarz reflection principle, uniformization

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